



BC4IOP (Blockchain for Interoperability)  
Honourable mention

**PUBLIC  
SECTOR  
TECH  
WATCH** interoperable  
europe



# eFTI Insights #1 Preparing for Regulation Adoption

## A Focus for the Public Sector

Thursday, 27 February 2025

[www.efti4eu.eu](http://www.efti4eu.eu)



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# Agenda

TIME	PROGRAMME	SPEAKERS
10:00	<b>Welcome and introduction</b> <ul style="list-style-type: none"> <li>eFTI4EU Project</li> <li>eFTI regulation</li> <li>Benefits</li> </ul>	Enriko Laanemäe
10.10	<b>IT architecture, eFTI components</b> <ul style="list-style-type: none"> <li>eFTI Platform</li> <li>eFTI Gate</li> <li>eDelivery</li> </ul>	Christian Lüpkes Rudy Hemeleers
10:30	<b>eFTI Reference Architecture: eFTI4EU State of Play</b> <ul style="list-style-type: none"> <li>Overview of the eFTI Reference Architecture</li> <li>What the Reference Architecture is and is not</li> </ul>	Teemu Heikura
10:40	<b>First steps and future plans of Member States in eFTI implementation</b> <ul style="list-style-type: none"> <li>Initial actions taken by early adopters</li> <li>Challenges and solutions in implementing eFTI</li> <li>Future plans and next steps for full compliance</li> <li>Lessons learned and best practices for other Member States</li> </ul>	Birgit Faßbender Victor Dolcemascolo
11:10	<b>Q&amp;A Session</b>	

# Welcome and Introduction

Enriko Laanemäe



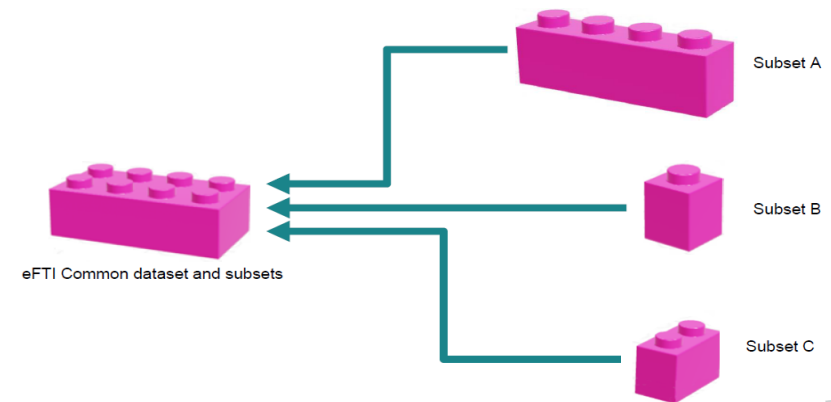
BC4IOP (Blockchain for Interoperability)  
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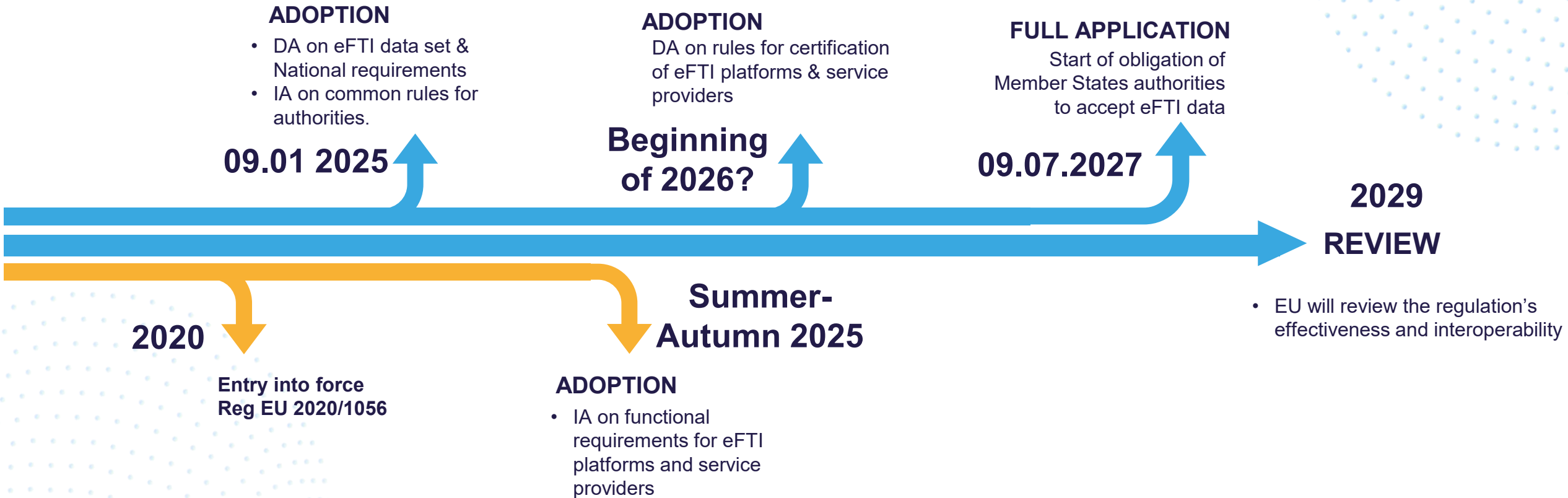
**eFTI4EU: The future of freight transport is digital**

# What is eFTI regulation 2020/1056?

- Efficient freight transport is crucial for the Union's economy, but reliance on paper documentation hinders logistics. eFTI regulation encourages the adoption of digital technologies.
- 09.07.2027, all EU Member States are required to have aligned systems in place (eFTI Gates) to accept electronic freight information presented for all transport modes (road, rail, air and INW). Maritime excluded because of Maritime Single Window.
- Only competent authorities are mandated to accept electronic freight information, with economic operators having the option to voluntarily participate.
- eFTI Regulation defines common Data Model, including data set and specific subsets, common digital building blocs, API's and certification rules for all EU Member States
- eFTI operates on data fields rather than entire documents, ensuring that parties access only the specific information they need, minimizing unnecessary exposure.



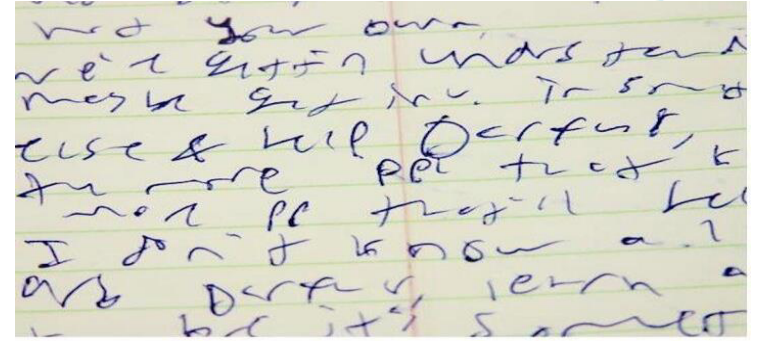
# Potential timeline for eFTI regulation



DA: Delegated Act  
IA: Implementing Act  
MS: Member State

## Benefits for Competent Authorities

- Competent Authorities is determined by Member States - Police/border guard, Customs, Safety and security authorities (Rescue Board, Fire & Rescue Service, Emergency Service, etc) and environmental agency (waste transport)
- Increased efficiency in inspections and controls
- Cross-border trade controls without bureaucratic burdens
- Transparency - providing insights into goods flow and better enforcement of national and EU regulations.





Source: EC - DG MOVE

Reg. No. **006TMD** QUERY

eFTI ×

WAYBILL eFTI4EU

START TIME	TRUCK	TRAILER
Date: 22.06.2024	Reg. No. 006TMD Country Eesti	Reg. No. HG001 Country Eesti

START LOCATION

Name -  
ID No. -  
Country -  
E-mail -  
Phone -  
Address: Cetralk park

END LOCATION

Name -  
ID No. -  
Country -  
E-mail -  
Phone -  
Address: Ke...



# Benefits for Economic Operators

- Cost saving - increasing the efficiency of internal processes
- Faster processing times – more efficient planning, inspections performed by the competent authorities are simpler and faster
- Data sharing - eFTI simplifies regulatory processes, allowing transport companies to submit standardised data quickly and accurately
- Certified platforms protect freight data with advanced encryption, reducing risks tied to physical document loss or theft.
- Real-time tracking and visibility throughout the supply chain




## Benefits for society

- Promotes eco-friendly transport – combined transport, optimized routes, faster processing times
- According to European Commission calculations:
  - Assuming that over 1.5 billion transport shipments have the potential to become paperless, with an average of 1-5 copies of each document per shipment not printed anymore - **would result in about 2-8 billion sheets of paper saved, this corresponds to 180-900 thousand trees saved annually**
  - CO2 emissions savings related to overall changes in volumes and patterns in traffic, as a result of the uptake of electronic transport information and documentation exchange, estimated at around **1,091-1,588 thousand tonnes** during the period 2018-2040.



# eFTI4EU

## PARTNERS and observers

-  PARTNER
-  OBSERVER



# eFTI4EU – Electronic Freight Transport information for European Union

eFTI4EU is co-funded by the European Union's CEF Funding Programme through the European Climate, Infrastructure and Environment Executive Agency (CINEA). It is the first project making the EU eFTI Regulation 2020/1056 real.

**23**

partners

**28.3**

million euro

**36**

months duration

**9**

member states

**4**

observers

# Consortium



REPUBLIC OF ESTONIA  
MINISTRY OF CLIMATE



DIGILOGISTIKA KESKUS  
DIGITAL LOGISTICS  
CENTER OF EXCELLENCE



Bundesministerium  
für Digitales  
und Verkehr



Bundesamt  
für Logistik  
und Mobilität



Circle  
Group



MINISTERO  
DELLE INFRASTRUTTURE  
E DEI TRASPORTI



Bundesministerium  
Klimaschutz, Umwelt,  
Energie, Mobilität,  
Innovation und Technologie



connecting  
EU by magellan circle



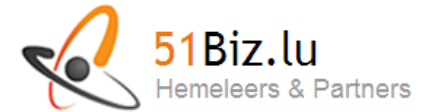
TRANSPORT  
INNOVATION  
ASSOCIATION



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KLAIPĖDA



51Biz.lu  
Hemeleers & Partners



Ministère de la Transition écologique et de la Cohésion des territoires  
Ministère de la Transition énergétique



LIETUVOS RESPUBLIKOS SUSISIEKIMO MINISTERIJA

# eFTI Expert Team (EET) Partners



# Mission & Activities



eFTI4EU's mission is to encourage Member States to work together to develop a well-harmonised and interoperable European-wide eFTI exchange environment



Developing and providing national and regional eFTI roadmaps, ensuring that eFTI is integrated consistently across Member States.

- National Roadmaps
- eFTI Gate Specifications



Developing and testing eFTI Gates in real-world conditions through a series of use cases, both at the national and cross-border level.

- eFTI Architecture
- Pilots

Disseminate project achievements and pilot results, while also establishing capacity-building initiatives for the stakeholder community.

- Communication on eFTI
- Dissemination via events & publications



## IT architecture, eFTI components

Christian Lüpkes and Rudy Hemeleers



BC4IOP (Blockchain for Interoperability)  
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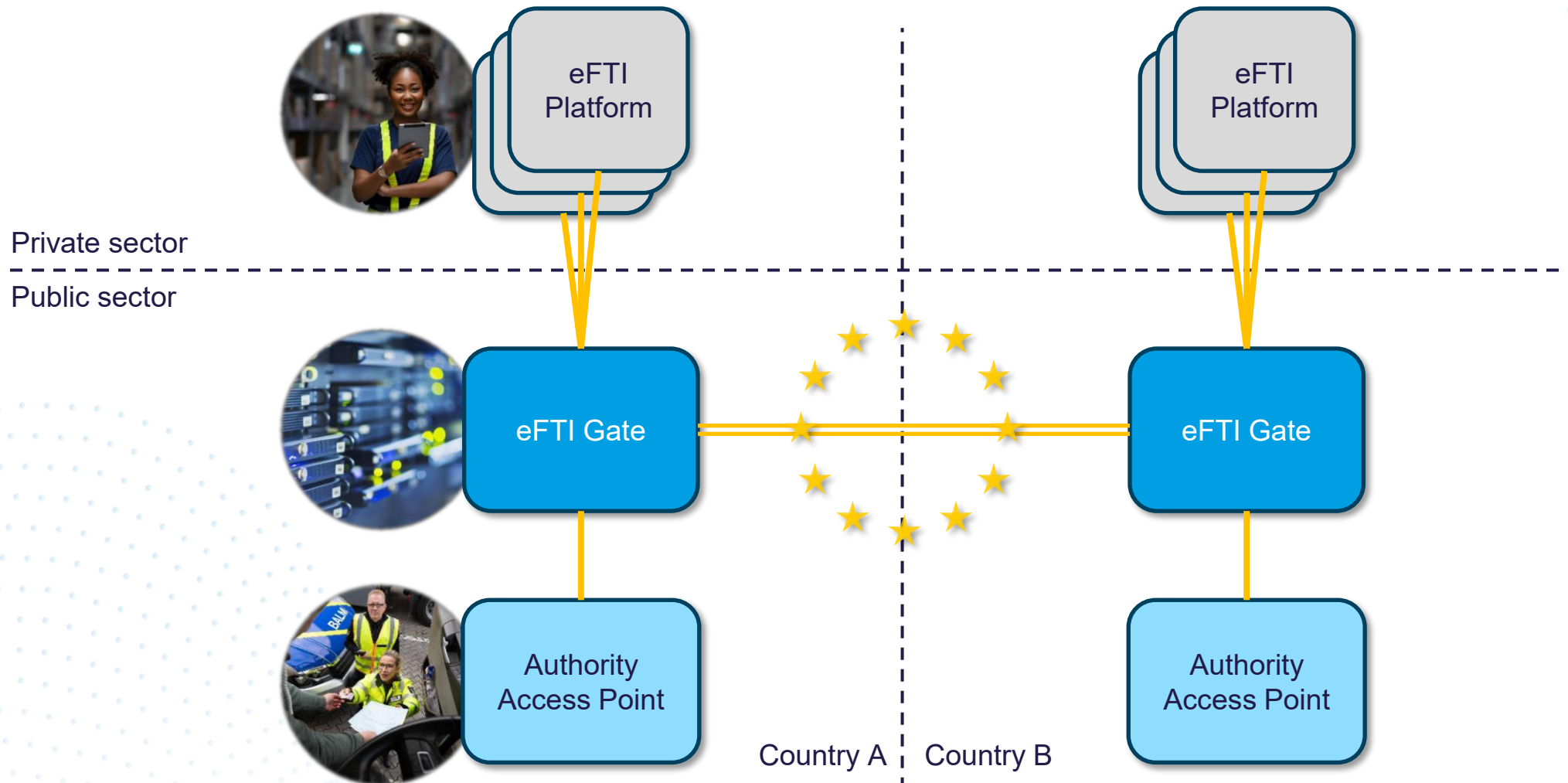
# The components of the EU eFTI Exchange Environment

Rudy Hemeleers, Christian Lüpkes

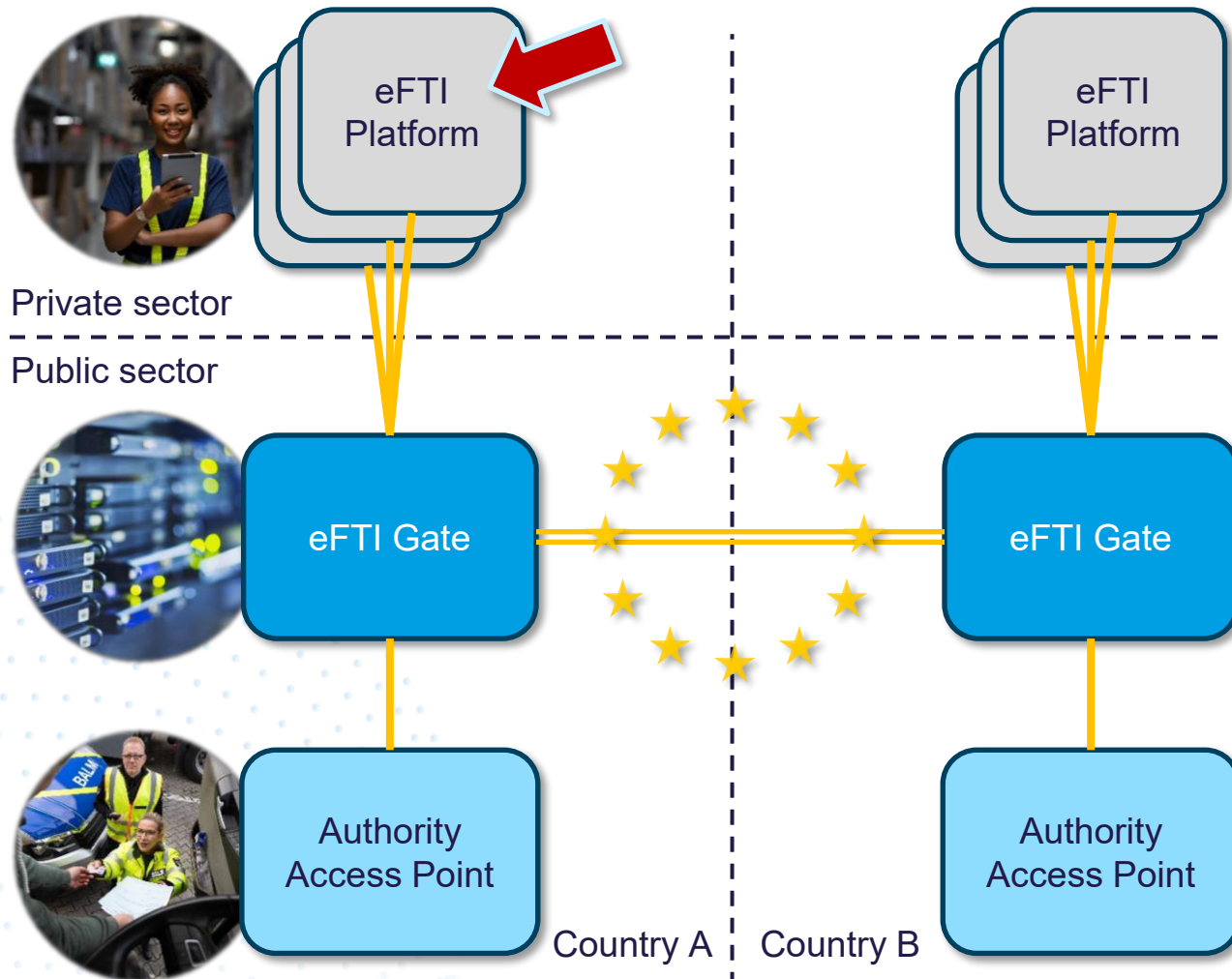
27 February 2025

1. The core components of the EU eFTI Exchange Environment
2. eFTI Processes
3. The eFTI4EU common dataset based on UN/CEFACT MMT Reference data model
4. The endpoints of the Gate-to-Gate and Gate-to-platform API specifications
5. Conclusion

# The components of the EU eFTI Exchange Environment



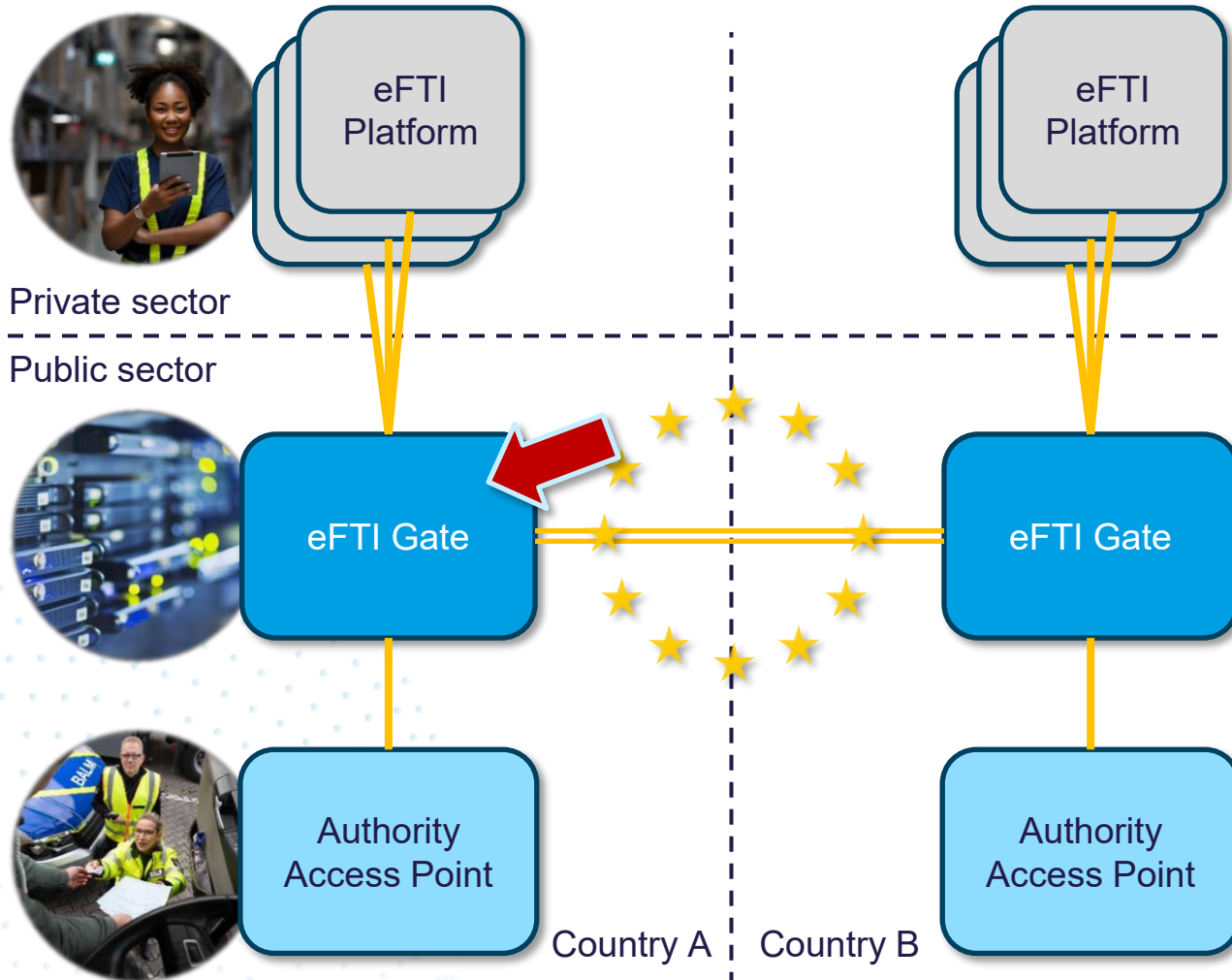
# The components of the EU eFTI Exchange Environment



## eFTI platform (private sector, economic operators)

- Could be based on existing TMS and ERP systems and reuse functions if necessary (eFTI platform is to be understood as a definition of properties) Provision of an up-to-date eFTI data set for a shipment or consignment
- Identification of the transport via link and identifier (e.g. vehicle license plate)
- Must be certified to demonstrate conformity with the requirements (legal act for platforms, legal act for certification)

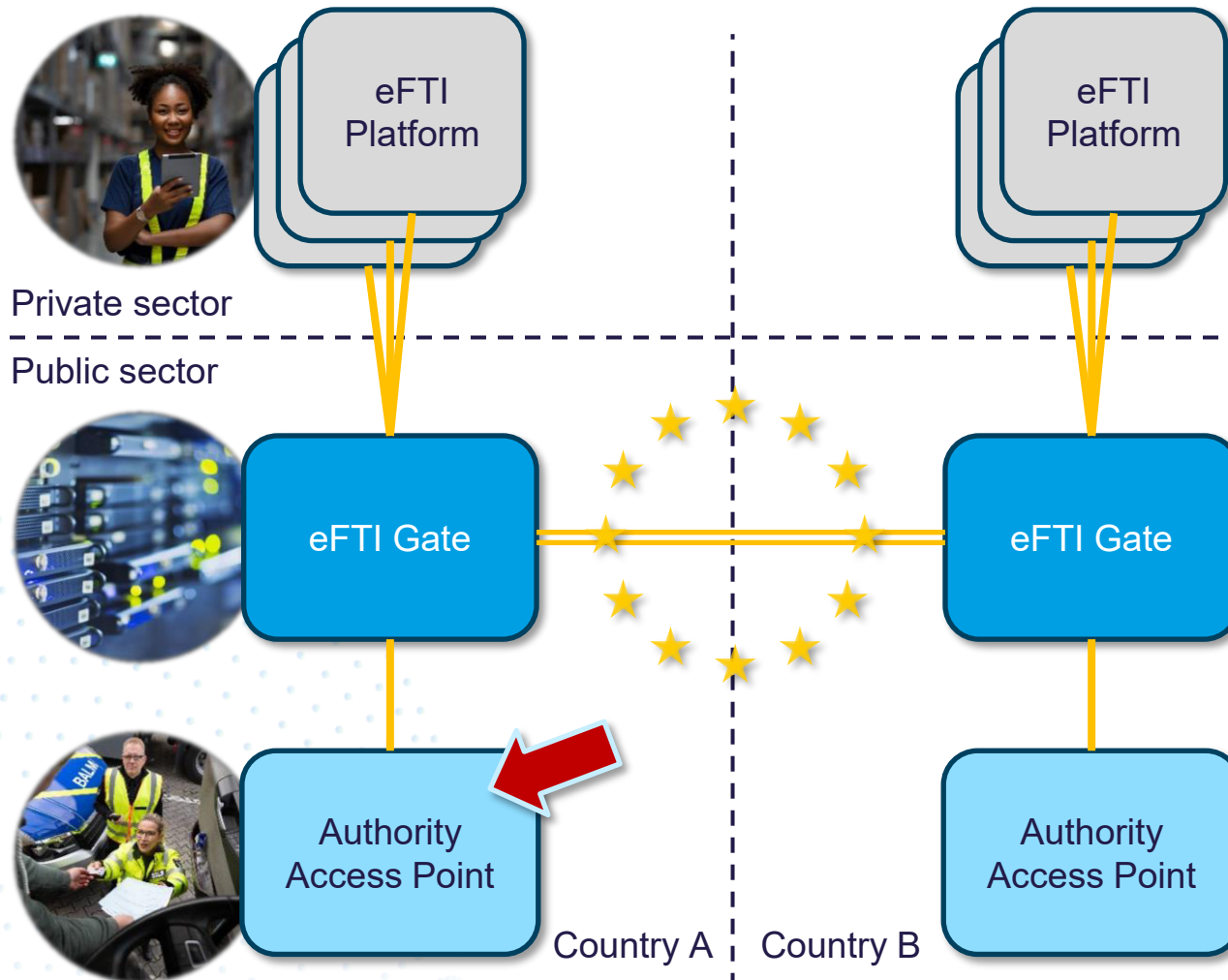
# The components of the EU eFTI Exchange Environment



## eFTI Gate (public sector, each EU Member State)

- Intermediary between the eFTI platforms and the competent authorities
- Connected to all other EU eFTI gates
- Use of eFTI exchange mechanisms to access eFTI data characterised by a unique identification link and identifiers (e.g. vehicle registration number, wagon ID, etc.).
- No data storage, except in the event of irregularities

# The components of the EU eFTI Exchange Environment



## Authority access point (public sector)

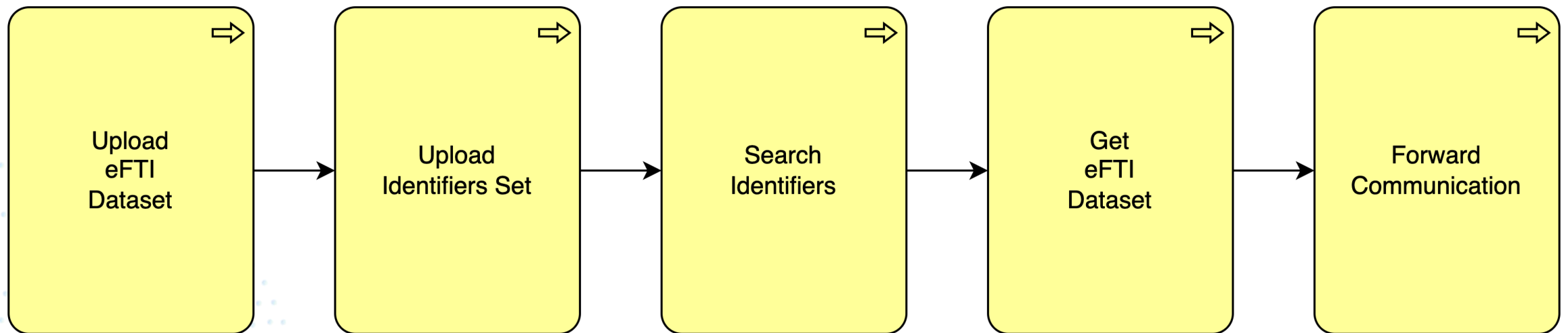
- Identification, authentication and access authorisation for responsible authorities
- Connection of e.g. (mobile) government user applications

# The components of the EU eFTI Exchange Environment



# The end-to-end eFTI business process

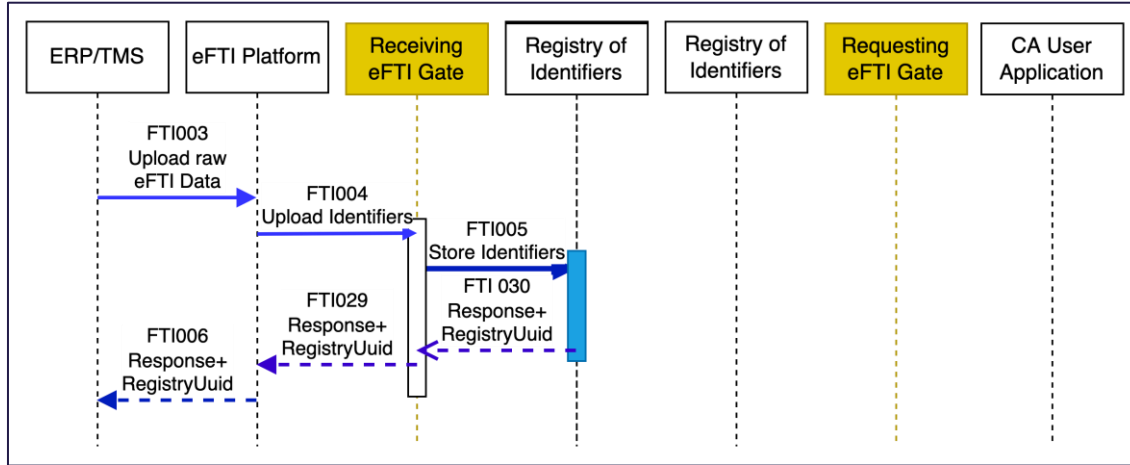
The components of the EU eFTI Exchange environment must enable the 5 steps of the end-to-end eFTI Business process that is designed to allow Economic Operators to use a single eFTI Gate connection to share eFTI subsets of transport information with competent authorities.



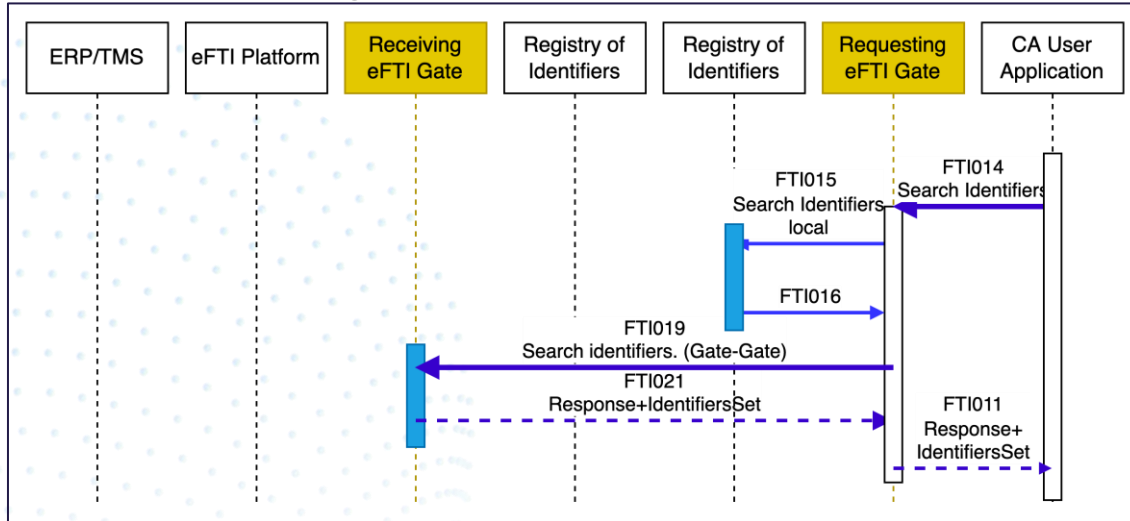


# eFTI sequence diagrams

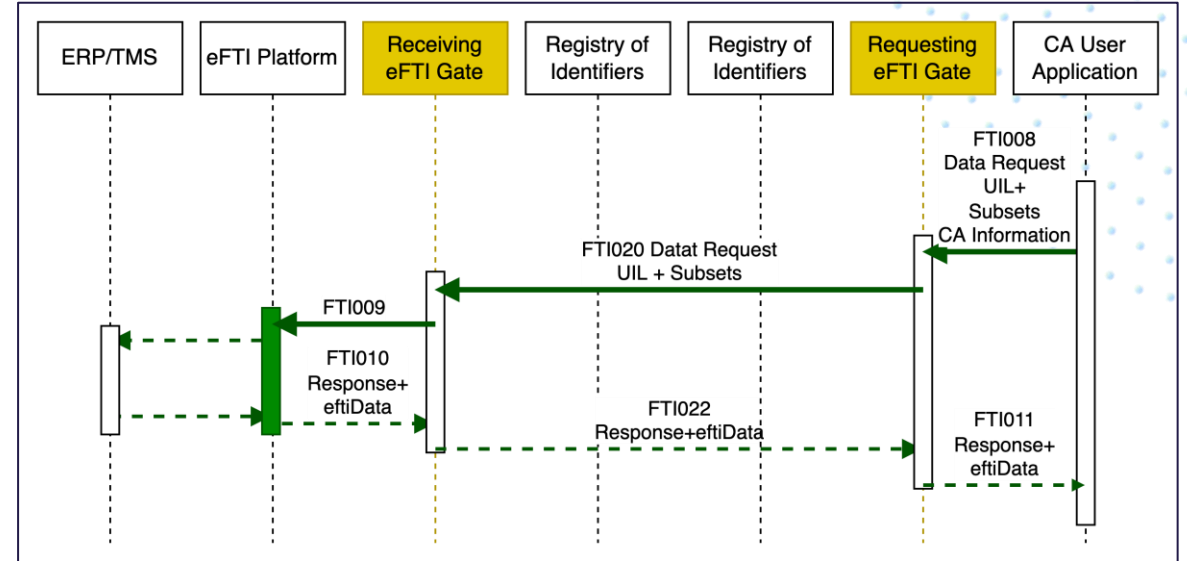
## Upload eFTI dataset and identifiers



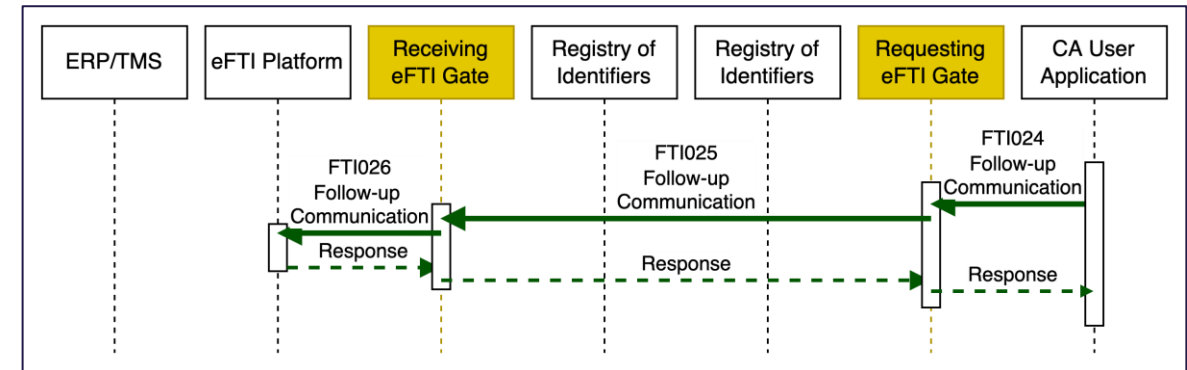
## Search identifier registries



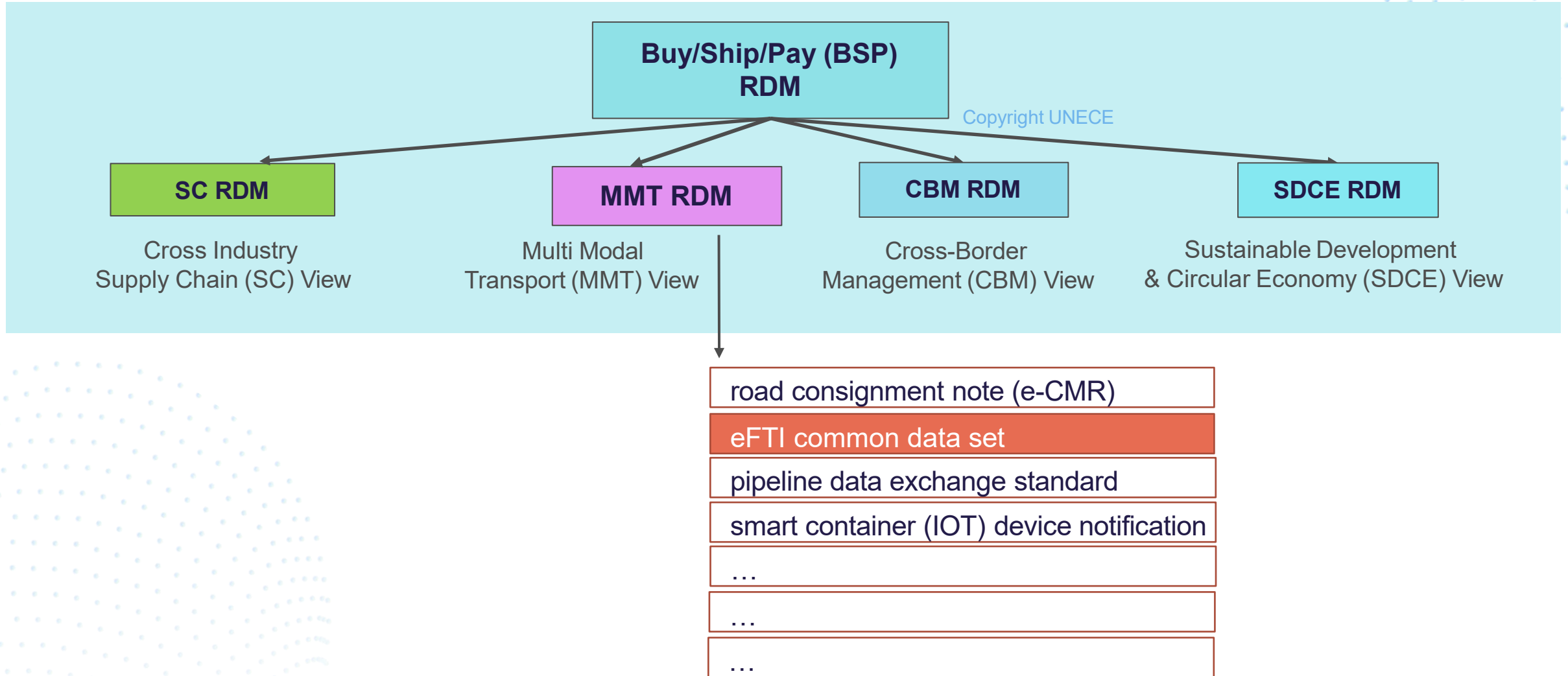
## Get eFTI data for UIL



## Follow-up communication



# The eFTI common dataset based on UN/CEFACT MMT and Core Components



# Building end-to-end interoperability

eFtiGate controller Services by eFTI Gate			
GET	/v1/identifiers	getIdentifiers Service	📄 ↩️ 🗑️
PUT	/v1/identifiers	saveIdentifiers Service	📄 ↩️ 🗑️
GET	/v1/dataset	getDataset Service	📄 ↩️ 🗑️
POST	/v1/follow-up	postFollowUp Service	📄 ↩️ 🗑️
eFtiPlatform controller Services by eFTI Platform			
GET	/v1/dataset	getDataset Service	📄 ↩️ 🗑️
POST	/v1/follow-up	postFollowUp Service	📄 ↩️ 🗑️

1. Importance of end-to-end eFTI pilot implementations to ensure cross-border eFTI interoperability.

2. Challenges

- Balance national autonomy with EU Harmonization
- Finetune eFTI common dataset
- EO want to use same data for B2G and B2B data sharing

# Thanks!

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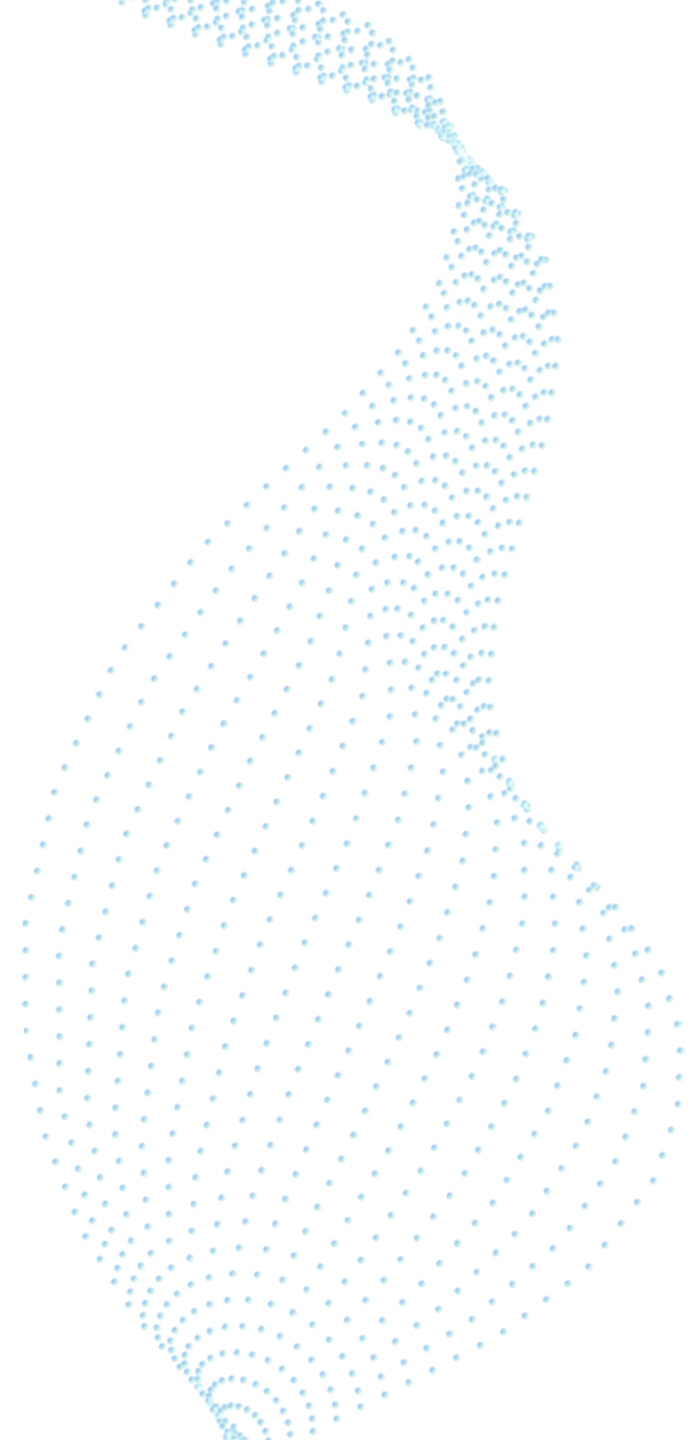


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## eFTI Reference Architecture: eFTI4EU State of Play

Teemu Heikura



BC4IOP (Blockchain for Interoperability)  
Honourable mention

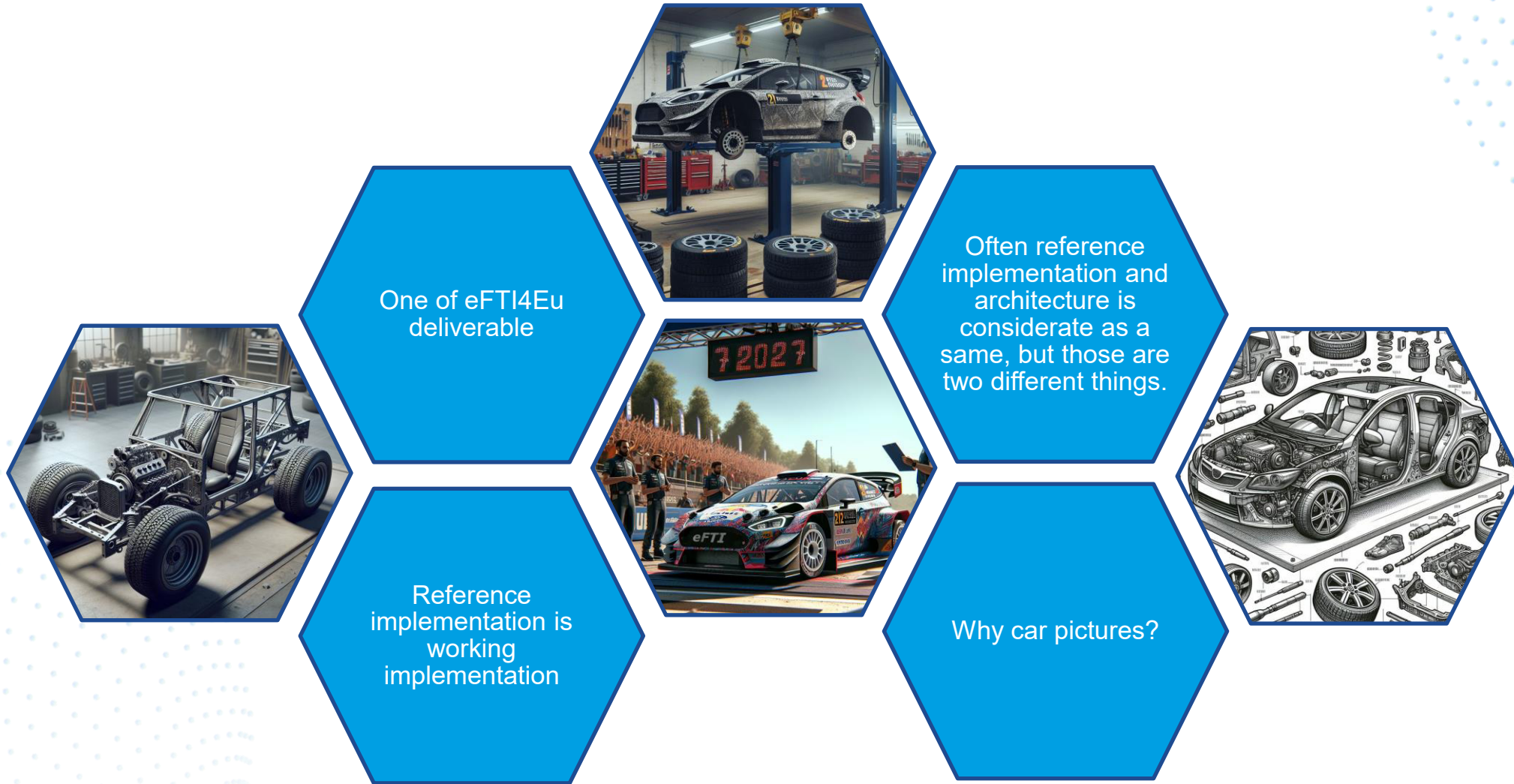


# eFTI reference architecture and implementation

## eFTI4EU State of Play

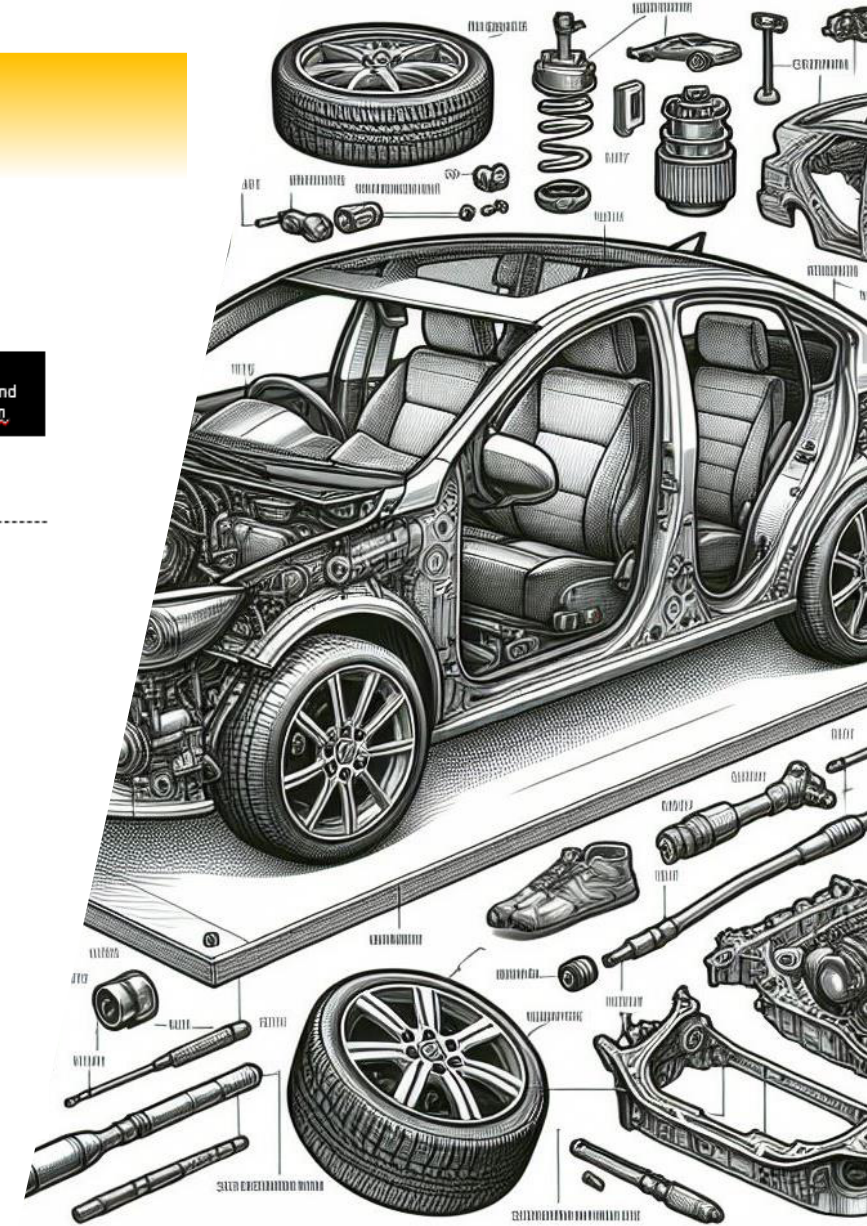
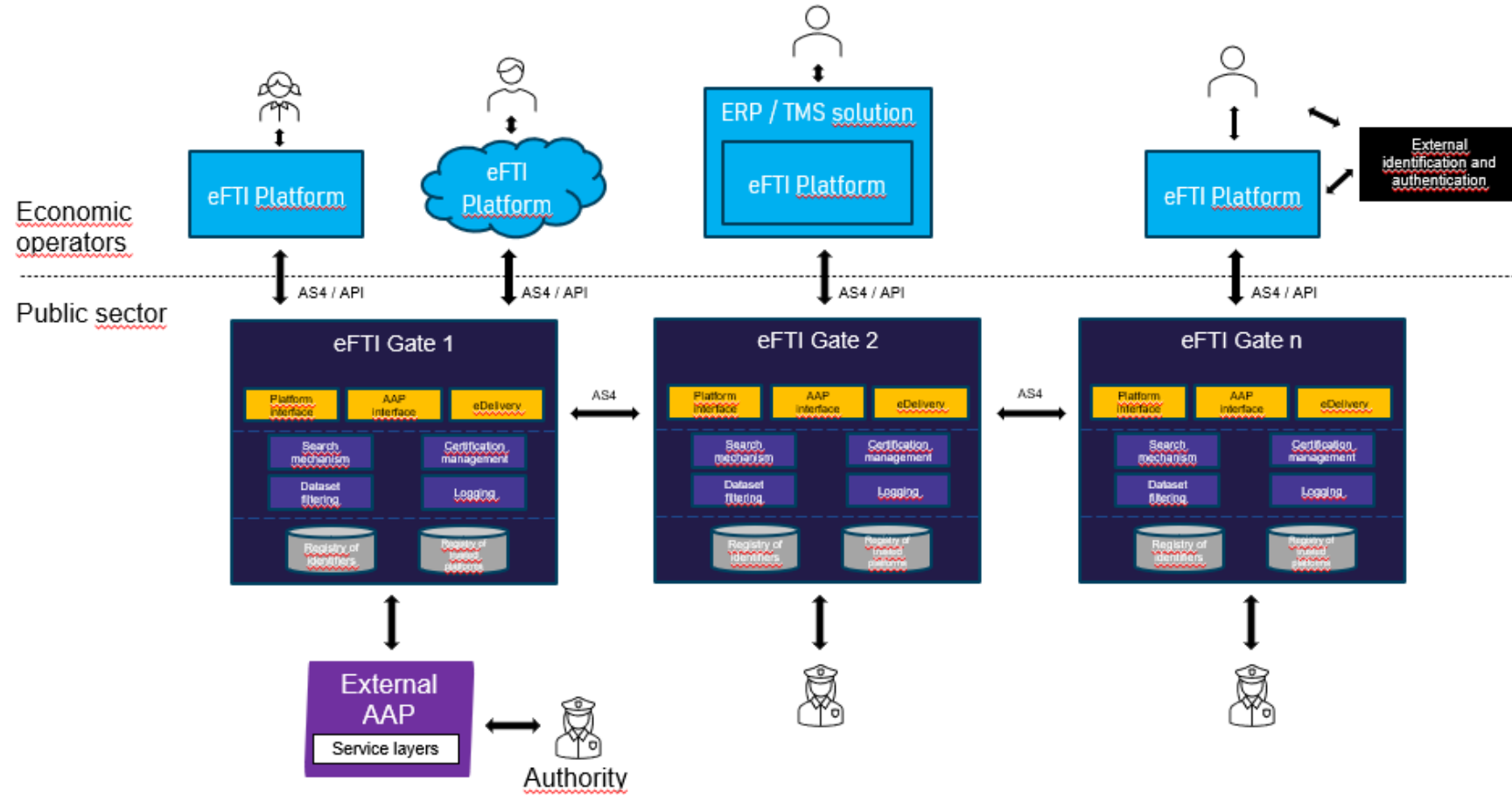
Teemu Heikura, Fintraffic, Finland

# eFTI reference implementation?



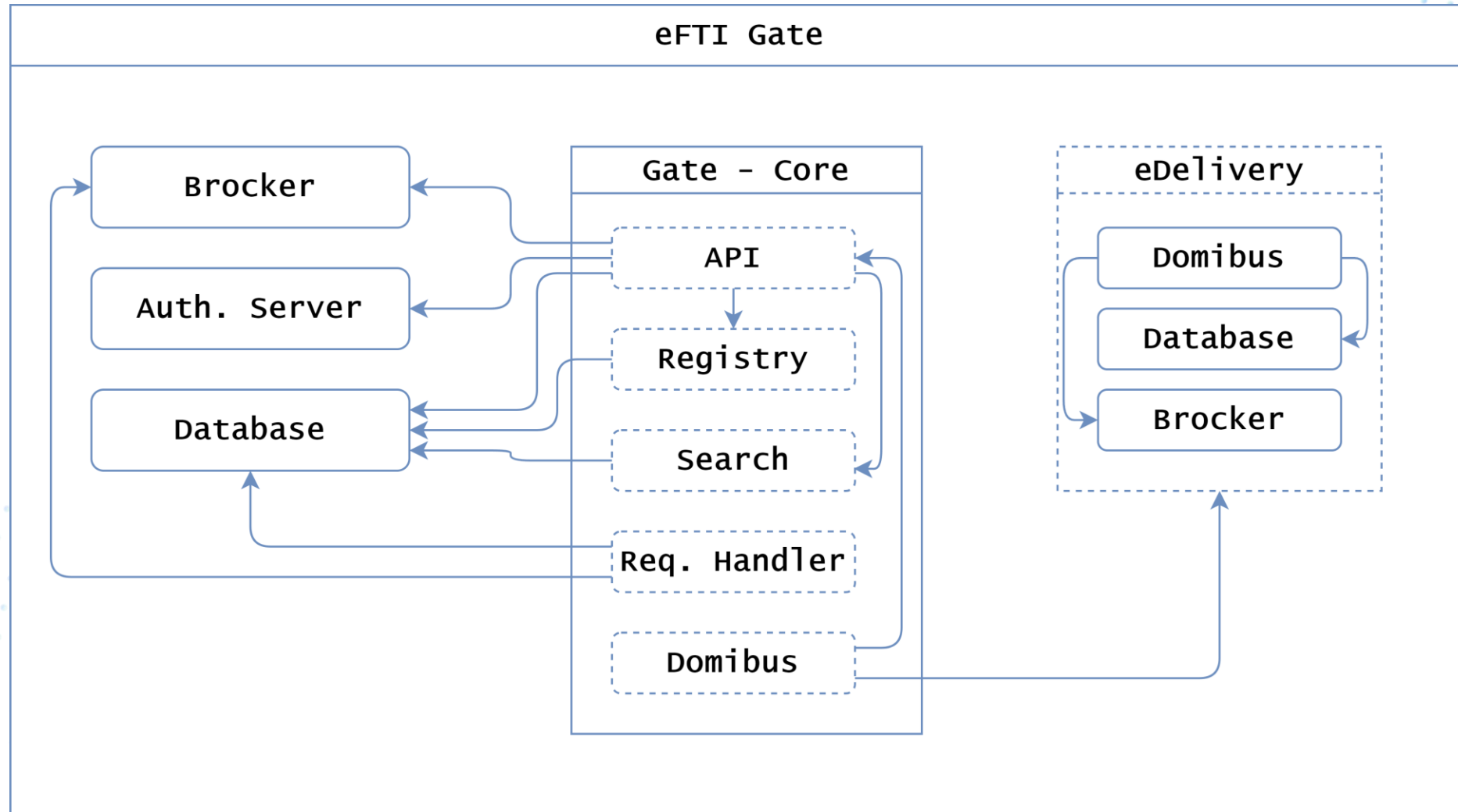
All car related pictures created by Microsoft CoPilot

# Reference architecture





# Architecture Overview – eFTI Gate Components



# Reference implementation

## Reference implementation is:

- one of our (eFTI4EU) deliverables
- following the latest version of regulation
- open source
- functional implementation with shared code

## Reference implementation is not:

- a version which contains additional modifications or changes proposed by the project
- ready for production use
- a national implementation

## In order to drive it, you need to:

- select wheels (running platform)
- driver ( who will do implement it to you)
- team (who will maintain it)
- drive settings (adapt it to follow your national requirements)

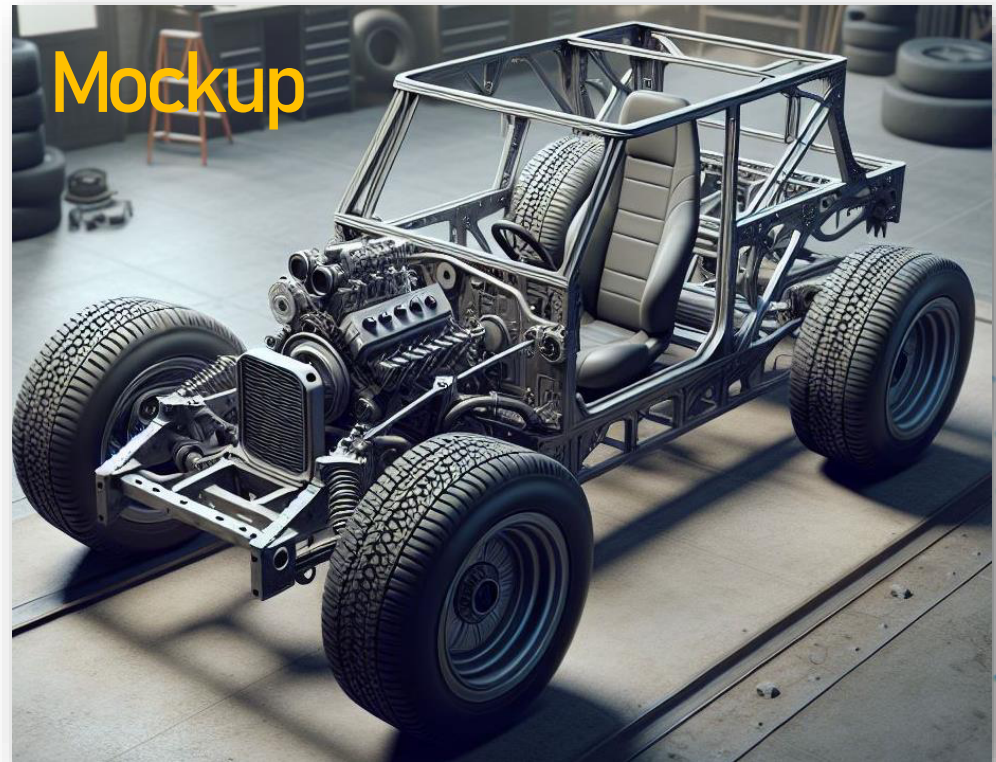


# Reference implementation

```
24 public class IdentifiersService {
28     private final IdentifiersRepository repository;
29     private final IdentifiersMapper mapper;
30     private final AuditRegistryLogService logService;
31     private final SerializeUtils serializeUtils;
32
33     @Value("${gate.owner}")
34     private String gateOwner;
35     @Value("${gate.country}")
36     private String gateCountry;
37
38     public void createOrUpdate(final SaveIdentifiersRequestWrapper identifiersDto) {
39         final String bodyBase64 = serializeUtils.mapObjectToBase64String(identifiersDto);
40         final SaveIdentifiersRequest identifiers = identifiersDto.getSaveIdentifiersRequest();
41
42         final Optional<Consignment> entityOptional = repository.findByUil(gateOwner,
43             identifiers.getDatasetId(), identifiersDto.getPlatformId());
44
45         Consignment consignment = mapper.dtoToEntity(identifiers);
46         consignment.setGateId(gateOwner);
47         consignment.setPlatformId(identifiersDto.getPlatformId());
48         consignment.setDatasetId(identifiers.getDatasetId());
49
50         if (entityOptional.isPresent()) {
51             consignment.setId(entityOptional.get().getId());
52             log.info("updating Consignment for uuid {}", consignment.getId());
53         } else {
54             log.info("creating new entry for dataset id {}", identifiers.getDatasetId());
55         }
56         this.save(consignment);
57         logService.log(identifiersDto, gateOwner, gateCountry, bodyBase64, FTI_004);
58     }
}
```

# Reference Implementation current version

- **Rel 0.5 - December 2024**
  - eDelivery Gate to Gate (PoC)
  - Search + Identifiers
  - -> interfaces
  - Application log (initial)
  - Registry of identifiers
  - Interface to AAP
  - CA application mockup
  - Documentation
    - General guide (D2.2 + Github)
    - Github technical documentation
  - Open source code - Github



# Reference Implementation Roadmap

- **Rel 0.9 – December 2025**
  - eDelivery Gate to platform
  - REST API Gate to platform
  - Platform certification & authentication
  - CA notification interface
  - Platform Mockup with eDelivery
  - Documentation
    - Updated

## Select the route you want to take:

How you do implementation?

- Do everything by yourself
- Use reference implementation
- Buy it from another country
- Create a coalition

In any case at least learn what we have made in eFTI4Eu project.

<https://github.com/EFTI4EU/reference-implementation>

Also interface descriptions and eDelivery settings are available over here.





# Thanks!

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## CONTACTS

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## First steps and future plans of Member States in eFTI implementation

Birgit Faßbender and Victor Dolcemascolo



BC4IOP (Blockchain for Interoperability)  
Honourable mention



# First steps and future plans of Member States in eFTI implementation

Bruxelles, 26/02/2025

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# 1. National Research Project on platforms

- Research Project with Fraunhofer to develop a platform reference implementation.
  - On the basis of eCMR Fraunhofer developed a software to connect a platform with a gate.
  - Only the relevant data will be transmitted.
  - Disclaimer: eFTI Dataset based on first versions early 2024 (not based on EU Reg. 2024/2424)
- 
- Duration: Mai 2023 bis Dezember 2024
  - Budget: 1.1 Mio Euro



## 2. National Research Project

- National eFTI Analysis
- Core subjects: Assessment of national impacts of eFTI in general and the European regulations
  - National existing systems for data exchange
  - Cost model for eFTI Gate (first estimations) for economical impact assessment
  - eFTI Platform requirement Analysis
  - Analysis of national certification procedure
- Duration: 2022 - 2025
- Budget: 400 T€




## 3. National Gate

- Economic Feasibility Study (EFS) for development and operation of the German gate in 2024 (6 months with experience)
- Multi-unit /-stakeholder involvement within the Ministry
- Ministry decision on state-owned company for implementation and operation, based on EFS
- Funding via National Budget, estimation for 2025: 3 Mio. €
- Specification of tasks and contract (negotiations since about 4 months, ongoing)



## 4. Participating in eFTI4EU

- Germany leads Work Package 1 (WP1)
- WP 1 aims to collect the situation within the MS to harmonize eFTI implementation, Country Roadmaps, Analyse the Delegated Acts und Implementing Acts with a view on a harmonized overall system and develop technical specifications
- Coordination of test strategies (responsible in Germany: CA)
- Develop a harmonized Governance-Modell and Certification rules
- Duration: 2023 – 2026, Budget: 500 T€



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over More

23

Partners

9

Member States

4

Observers

3

Mon

## 5. Conferences and workshops (examples)

- Workshop at Munich transport logistics 2023
- Conference Slot on Platforms and Control operation at Munich Transport Logistics 2025
- Digital Workshop with BITKOM, IT association
- Workshop at BVL Congress with companies (Rhenus + Schenker, CA)
- Digital workshops with Competent Authorities and german states
- National Workshops on Platform architecture ongoing with physical presence



## 6. Challenges & Lessons learnt

- TIME!
- Planning challenging and time consuming
  - Estimation Budget for an eFTI Gate IT modul that nobody knows
  - Short time for implementation
  - Research Projects to get expert knowledge are very important
- Benefits for the economy are difficult to estimate (in €)
- Costs and time for certification (1,5 to 2 years)
- Experts lacking in the ministry
- eFTI4EU best decision, joint work and progress





# Thanks!

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## CONTACTS

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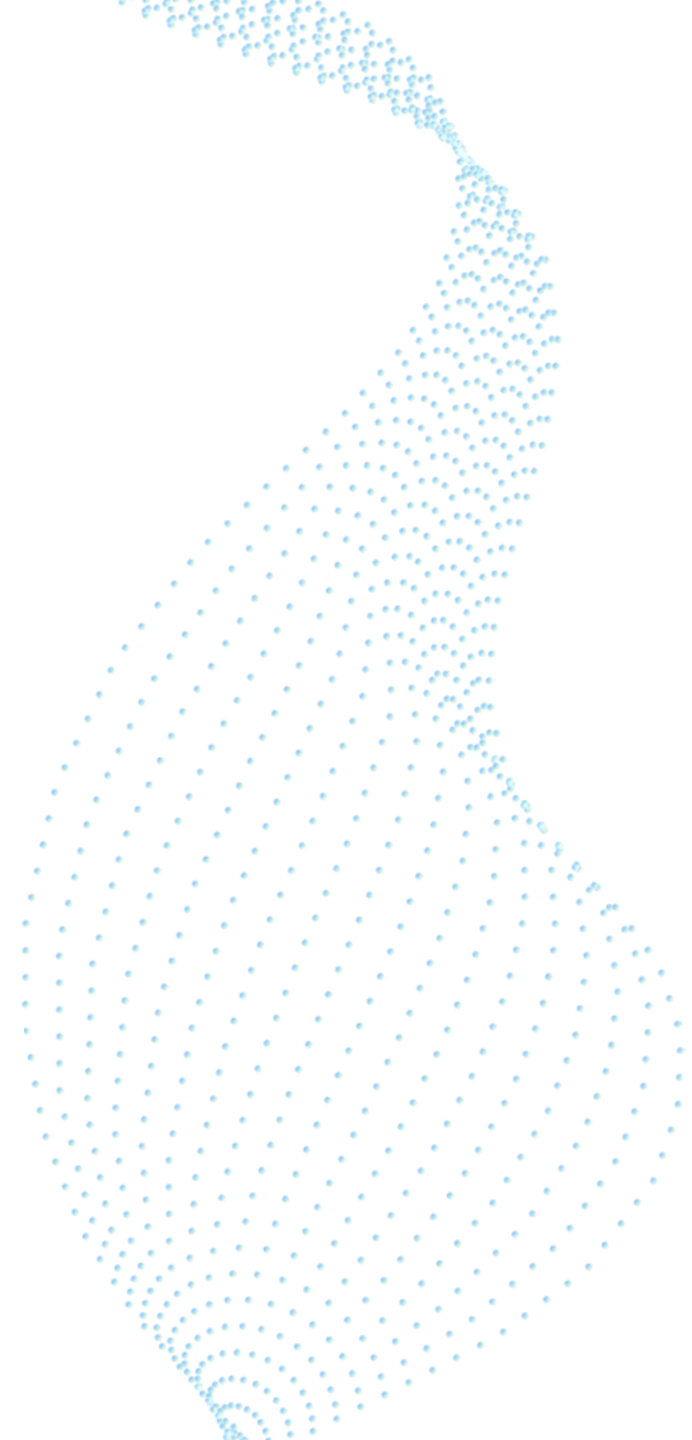


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# First steps and future plans of Member States in eFTI implementation - FRANCE

Bruxelles, 27/02/2025

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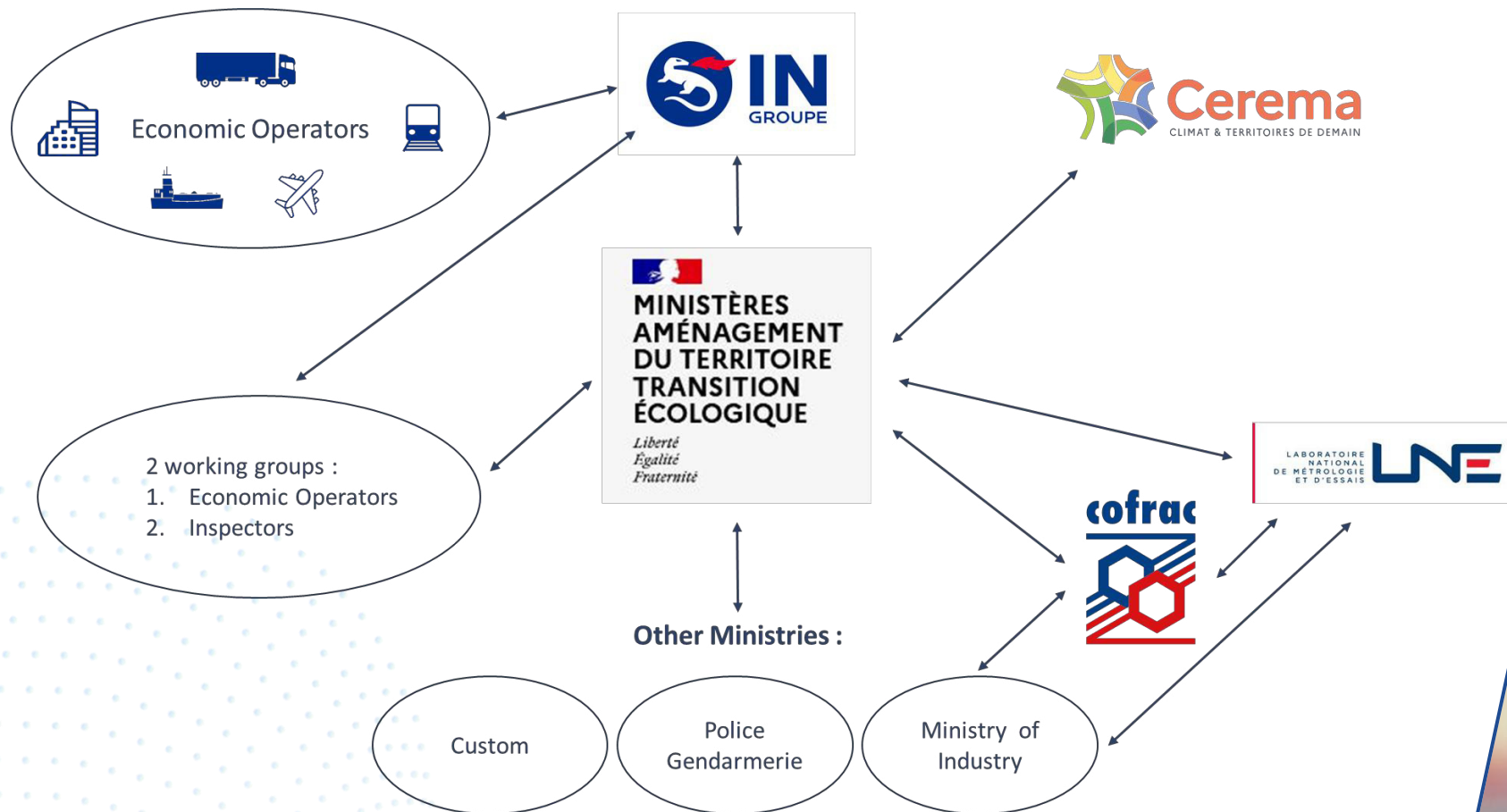


# 1. National Project on digitalisation on logistics

- 20 October 2021, launch of a call for projects concerning the strategy to accelerate innovation in the transport sector, for the "digitalisation and decarbonisation of mobility" in logistics.
- The call for project targets 3 needs :
  - 1) digitalisation of supply chains,
  - 2) the transition to ecologically sustainable supply chains, and
  - 3) the automation of supply chains.
- In the 'digitisation of supply chains' theme, 4 French companies awarded for building eFTI platforms - at about €12 million in grants.
- Duration: January 2022 - December 2027
- Budget: €90 million



## 2. French organization for the implementation of the eFTI regulation



### 3. Participating in eFTI4EU

- IN Groupe : Beneficiary, French MoT : Associated partner
- In house contract between IN Groupe and Fr MoT
  - IN Groupe : Design and development of the French eFTI gate, connection of the future eFTI platforms to the eFTI gate
  - French MoT : design of the control Application for the road sector
  - Tests about connection between the French eFTI gate and Control Application : ok !
- In house contract with Cerema, technical assistance particularly on dangerous goods
- LNE/ Cofrac : Certification/ Accreditation work, DTLF



## 4. Conferences and workshops (examples)

- Each year several workshops with inspectors working group and EO
- Round table in a SITL\* - International Transport and Logistics Exhibition
- Seminar on the digitalization for logistics

\*Salon International du Transport et de la Logistique



## 5. Challenges & Lessons learnt

- Focus on road sector for implementation of the eFTI regulation
- How to convince the transport sector to use eFTI, as eFTI is not mandatory for them initially?
- Transport trade union motivated by eFTI, but issue of the eFTI cost for the *Small and medium-sized enterprises (SMEs)*
- Inspectors have a positive opinion on eFTI
- Benefits for the Eo's are difficult to estimate (in €)
- Need of national budget
  - For the development of the eFTI Gate IT
  - For operational costs of the gate
  - For the development/maintenance of the control application for inspector
- Certification cost/time can be seen as an issue for the private sector



# Thanks!

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## CONTACT

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## Q&A SESSION

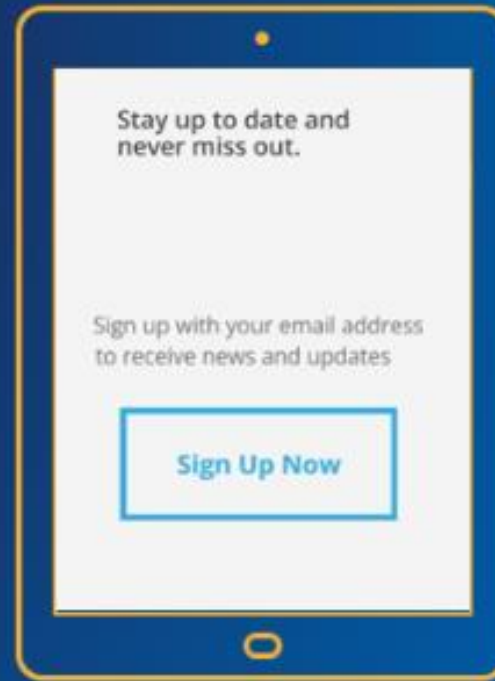


BC4IOP (Blockchain for Interoperability)  
Honourable mention

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